

AMENDMENT TO THE SPECIFICATION

Insert at end:

“ABSTRACT

“A circuit and method for processing digitized analog signals (“input signals”) containing noise as well as maxima and minima of input signal, whereby local peaks and valleys of the input signal are detected and captured in the presence of the noise, and whereby peak detection attributable only to noise is suppressed.”

Page 1, second full paragraph:

“Radiation spectrometers perform pulse light analysis of pulse signals from a radiation detector. The pulse height is measured by detecting the peak values of the pulses. The peak detection involves two signals – peak detect and peak value. In general, the peak value is referred to the maximum of the pulse waveform. It is, however, beneficial to know both the minimal (MIN) and maximal (MAX) peak values of the signal, as is described in V. [[Joranov]] Jordanov and G. F. Knoll, “Digital Pulse Processor Using A Moving Average Technique”, *IEEE Trans. Nucl. Sci.*, Vol. 40, No. 4, pp 764-769, August 1993; and H. Sawata and Y. Tomimitsu, “Digitalized Amplitude Detection Circuit For Analog Input Signal”, U.S. Patent No. 4,769,613.”

Page 2, second full paragraph:

“A common approach to find a MAX pulse peak is to use a low-level discriminator. Figure 1 depicts a block diagram of a low-level discriminator based peak detector. A first digital comparator CMP1 30 controls the peak detection process. The discrete pulse signal is connected to one of the inputs (A) of comparator [[20]] 30, while a threshold value is applied to the

other input (B). When the discrete signal is below the threshold value, the output of comparator 30 is in inactive state (LOW). When the comparator CMP1 output is inactive, peak register PREG 40 is held in reset state – the output thereof is forced to zero. A second digital comparator CMP2 50 is used to compare the output of peak register 40 with the discrete pulse signal. The output of second comparator 50 is HIGH when the pulse signal sample is greater than the PREG value. The output of second comparator CMP2 50 [[output]] controls the enable input of peak register 40. When the enable signal is HIGH, the current pulse signal value at the input of peak register 40 can be stored. When the peak register is in a reset state, the enable input is disregarded.”

Page 3, first full paragraph:

“Figures 2a and 2b illustrate the operation of the low-level [[discriminator based]] discriminator-based peak detector of Figure 1. Two pulses that partially overlap are shown in Figure 2a together with the noise threshold. The output of PREG 40 (Figure 1) is shown in the second waveform in Figure 2b. The MAX peak value that will be captured is indicated. The last waveform in Figure 2b is the peak detect signal. It is clear that this type of peak detector detects the absolute maximum while the signal is above the threshold and Figures 2a and 2b illustrate a limitation of the low-level discriminator approach; namely, that only one peak over the threshold is detected, even though the resulting pulse signal comprises two pulses each having its own MAX pulse peak.”

Page 4, second full paragraph:

“The operation of [[differentiation based]] differentiation-based peak detector 100 (Figure 4) is illustrated with the waveforms shown in Figure 5. The same discrete pulse signal as in the previous case is shown.

The second trace shows the differentiated signal. At each crossing of the zero line, the [[peak detect]] peak-detect signal changes its state. It is obvious that the noise immunity of such detector is very poor. However, it is possible to detect local MAX and MIN values, even ones with very small amplitude.”

Page 5, partial paragraph at top:

“Although, these methods provide improved performance, the optimal setup is difficult to realize. The timing protection is hard to predict, especially considering the timing walk and timing jitter of the circuits – they also depend on the noise level. In order to optimize the performance of the peak detector, a novel [[peak detector configuration was]] peak-detector configuration has been developed.”

Page 5, fifth full paragraph:

“The present invention achieves the above objects, among others, by providing, in a preferred embodiment, a method of operating a peak detector, comprising: providing said peak detector; applying a discrete pulse input signal to said peak detector; and using said peak detector to detect local [[maximum]] maxima or local [[minimum]] minima of said input signal.”

Page 6, fourth full paragraph:

“Figure 4 is a block diagram of a peak detector using a [[differentiated pulse signal]] differentiated-pulse-signal and detecting zero crossings.”